
NT8D41AA Serial Data Interface Paddle Board

The NT8D41AA Serial Data Interface (SDI) Paddle Board provides two RS-232-C serial ports. These ports allow communication between the Meridian 1 system and two external devices. The SDI paddle board is normally used to connect the Meridian 1 system to the system administration and maintenance terminal. It can also be used to connect the system to a background terminal (used in the hotel/motel environment), a modem, or to the Automatic Call Distribution (ACD) or Call Detail Recording (CDR) features.

The SDI paddle board mounts to a special socket on the rear of the backplane of the following modules:

- NT5D21 Core/Network Module for system options 51C, 61C, and 81C
- NT6D39 CPU/Network Module for system options 51 and 61
- NT8D11 Common/Peripheral Equipment (CE/PE) Module for system options 21, 21A, and 21E
- NT9D11 Core/Network Module for system option 61C

The SDI paddle board is compatible with all existing system software, but can only be used with the Meridian 1 system options listed above. It does not support 20 mA current loop interface.

Physical description

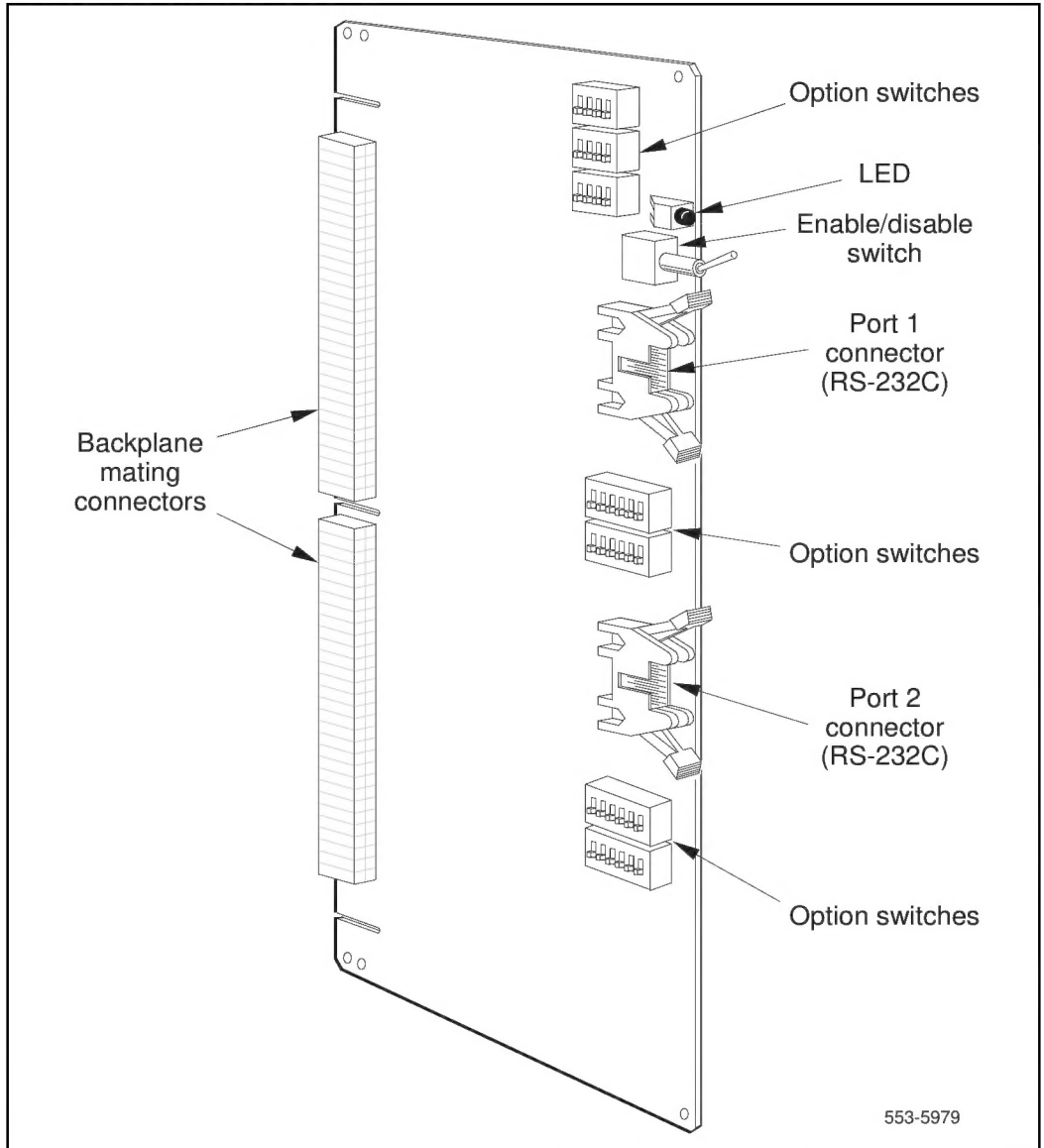
The NT8D41AA Serial Data Interface Paddle Board (see [Figure 1](#)) is a printed circuit board measuring 31.12 by 12.7 cm. (12.25 by 5.0 in.).

Up to two paddle boards can be used in a system backplane for a total of four serial ports (up to 12 other serial ports can be added by plugging standard serial cards into standard system slots). The two serial ports on each card are addressed as a pair of consecutive addresses (0 and 1, 2 and 3, and so on to 14 and 15).

The front edge of the card has two serial port connectors, an enable/disable switch (ENB/DIS), and a red light emitting diode (LED). The LED indicates that the card has been disabled. It is lit when

- the ENB/DIS switch is set to disable
- both ports are disabled in software
- the ports are not configured in the configuration record

Figure 1
NT8D41AA SDI Paddle Board

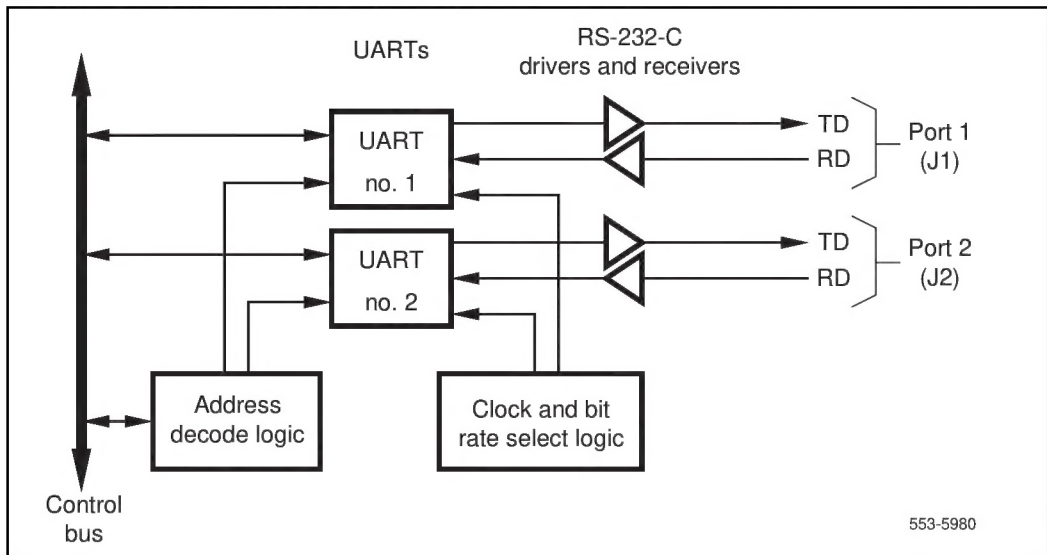


Functional description

The NT8D41AA SDI Paddle Board has two asynchronous serial ports. These serial ports are connected to the I/O panel in the back of the shelf using special adapter cables. The serial ports can be used to connect the Meridian 1 system to a terminal, a printer, a modem, or to an other system processor.

The SDI paddle board (see [Figure 2](#)) contains two Universal Asynchronous Receiver/Transmitters (UARTs) and the logic necessary to connect the UARTs to the system processor bus. Other logic on the card includes two baud rate generators, two RS-232-C driver/receiver pairs, and the switches and logic needed to configure the UARTs.

Figure 2
NT8D41AA SDI Paddle Board block diagram



System considerations

In dual-processor Meridian 1 systems, the SDI paddle board will behave differently depending on which backplane socket it is installed in. Installing the paddle board into a socket in the network area of the backplane allows it to work when either of the system processors is active. Installing the paddle board into a socket in the CPU area of the backplane allows it to work only when that CPU is active.

The SDI paddle board is normally installed into a socket in the network area of the backplane. This allows it to be accessed by either of the system processors. This is necessary because the active CPU switches automatically each night at midnight and whenever a fault occurs on the active CPU card.

The SDI paddle board can also be installed into a socket in the CPU area of the backplane. This is done when performing maintenance or an upgrade on the Meridian 1 system. The SDI paddle board is plugged into the CPU that is not the active system CPU. One of the serial ports on the SDI paddle board is then connected to a maintenance terminal and the CPU board is put into maintenance mode. Diagnostics can then be run from the maintenance terminal without having to stop the system. This is also used to perform a parallel reload of the system software without affecting the operation of the switch.

The SDI paddle board cannot be used in Meridian 1 systems options 71 and 81 since there are no sockets on the rear of the backplane in the NT8D34 CPU Module or the NT6D60 Core Module. However, the NT6D66 Call Processor Card has two on-board serial ports. The NT6D66 Call Processor Card is used in the option 51C, 61C, 81, and 81C.

Connector pin assignments

The RS-232-C signals for port 1 are brought out on connector J1 and the RS-232-C signals for port 2 are brought out on connector J2. The pinouts of J1 and J2 are identical, so [Table 4](#) can be used for both ports.

Table 4
 Connectors J1 and J2 pin assignments

Pin #	Signal	Purpose in DTE mode	Purpose in DCE mode
1	CD	Carrier detect (Note 1)	Carrier detect (Not used)
2	RD	Transmitted data	Received data
3	TD	Received data	Transmitted data
4	DTR	Data terminal ready	Data terminal ready (Note 2)
5	GND	Ground	Ground
6	DSR	Data set ready (Note 1)	Data set ready
7	RTS	Request to send (Not Used)	Request to send (Note 2)
8	CTS	Clear to send (Note 1)	Clear to send
Note 1: In DTE mode the signals CD, DSR, and CTS are tied to +12 volts to signify that the port on the SDI Paddle Board is always ready to transmit and receive data.			
Note 2: In DCE mode the signals DTR and RTS are tied to +12 volts to signify that the port on the SDI Paddle Board is always ready to transmit and receive data.			

Configuring the SDI paddle board

Configuring the SDI paddle board to work in a Meridian 1 system consists of setting these option switches for each serial port:

- Port address
- Baud rate
- DTE/DCE mode

The SDI paddle board has seven option switches, SW2–8. [Figure 3](#) identifies the location of option switches on the SDI paddle board. Instructions for setting these switches are in the section that follows.

Once the board has been installed, the system software must be configured to recognize it. Instructions for doing this are found in the section titled *Software service changes*.

Option switch settings

Address

Address select switch SW4 and logic on the card always address the two UARTs using a pair of addresses: 0 and 1, 2 and 3 through 15 and 16. The settings for this switch are shown in [Table 5](#).

Table 5
SDI paddle board address switch settings

Address		Switch SW4			
Port 1	Port 2	1	2	3	4
0	1	off	on	on	on
2	3	off	on	on	off
4	5	off	on	off	on
6	7	off	on	off	off
8	9	off	off	on	on
10	11	off	off	on	off
12	13	off	off	off	on
14	15	off	off	off	off

Baud rate

Switches SW2 and SW3 determine the baud rate for each individual port. The settings for these switches are shown in [Table 6](#).

Table 6
SDI paddle board baud rate switch settings

Baud rate	Port 1—SW2				Port 2—SW3			
	1	2	3	4	1	2	3	4
150	off	off	on	on	off	off	on	on
300	off	on	off	on	off	on	off	on
600	off	off	off	on	off	off	off	on
1200	off	on	on	off	off	on	on	off
2400	off	off	on	off	off	off	on	off
4800	off	on	off	off	off	on	off	off
9600	off	off	off	off	off	off	off	off

DTE/DCE mode

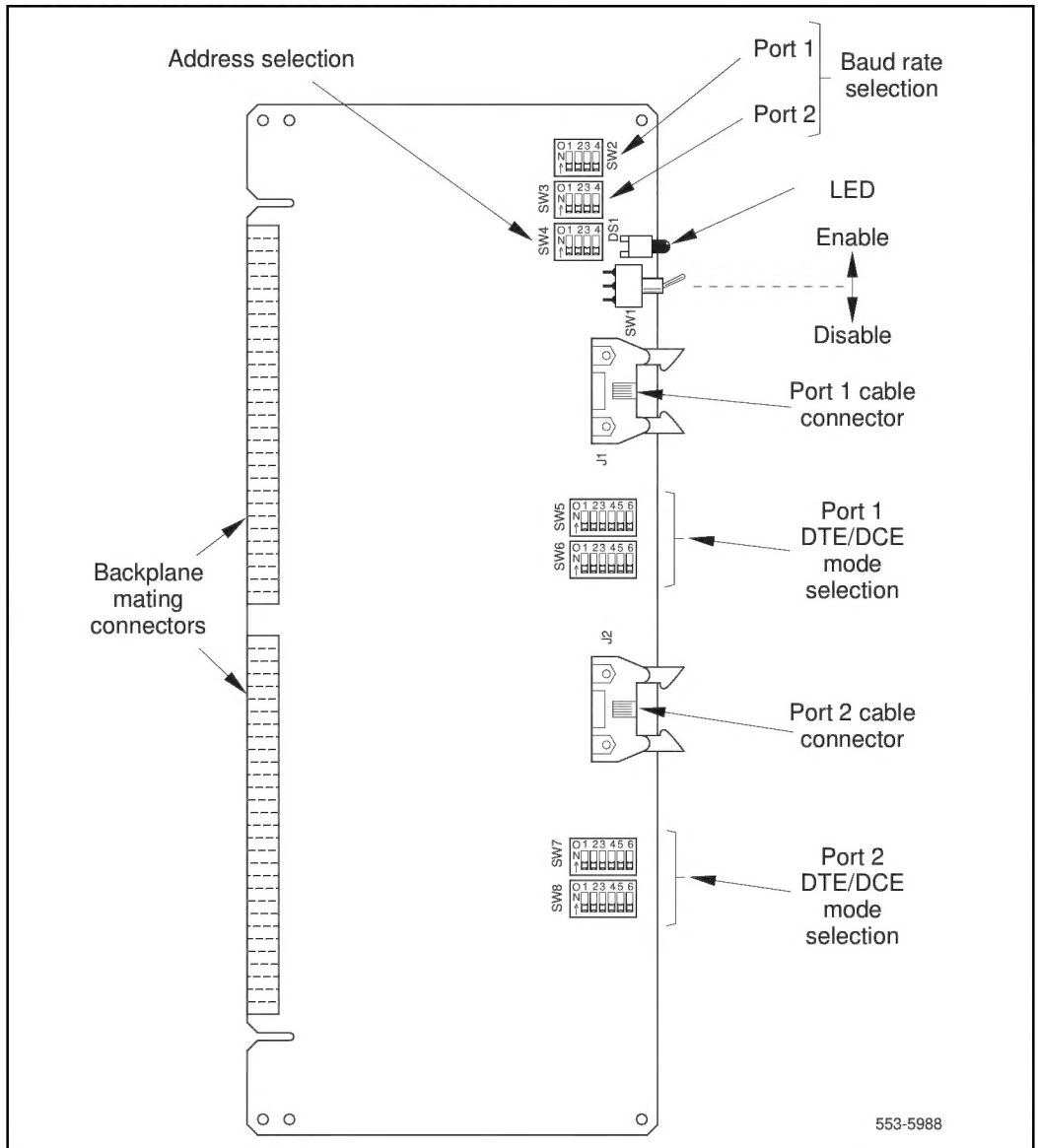
Each serial port can be configured to connect to a terminal (DTE equipment) or a modem (DCE equipment). Instructions for setting the DTE/DCE switches SW5, SW6, SW7, and SW8 are shown in [Table 7](#).

Example: Port 1 is changed from DTE to DCE by turning all of the switches on SW5 off and turning all of the switches on SW6 on.

Table 7
SDI paddle board DTE/DCE mode switch settings

Mode	Port 1—SW5						Port 1—SW6					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	on	on	on	on	on	on	off	off	off	off	off	off
DCE (modem)	off	off	off	off	off	off	on	on	on	on	on	on
	Port 2—SW7						Port 2—SW8					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	on	on	on	on	on	on	off	off	off	off	off	off
DCE (modem)	off	off	off	off	off	off	on	on	on	on	on	on

Figure 3
SDI paddle board option switch locations



Software service changes

Once the NT8D841 SDI Paddle Board has been installed in the system, the system software needs to be configured to recognize it. This is done using the Configuration Record program (LD 17). Instructions for running the Configuration Record program are found in the *X11 input/output guide*.

Some of the prompts that are commonly used when running the Configuration Record program (LD 17) are shown in [Table 8](#). These parameters must be set for each port if both ports are being used.

Table 8
Serial port configuration parameters

Prompt	Response	Description
REQ	CHG	Change configuration.
TYPE	CFN	Configuration type.
IOTB	YES	Change input/output devices.
ADAN	NEW TTY x New PRT x	Define a new system terminal (printer) port as device x, where x = 0 to 15.
CDNO	1–16	Use the SDI paddle board number to keep track of all ports.
DENS	DDEN	Double density SDI paddle board.
USER	xxx	Enter the user of port x. The values that can be entered depend on the software being used. See the <i>X11 input/output guide</i> for details.
XSM	Yes, (No)	Port is used for the system monitor.

Applications

The NT8D41AA Serial Data Interface Paddle Board is used to connect the Meridian 1 switch to a variety of communications devices, printers, and peripherals. Any RS-232-C compatible device can be connected to either of the card's two serial ports.

The standard application for the paddle board is to connect the Meridian 1 switch to the system console. This can be either a direct connection if the console is located near the switch, or through a modem for remote maintenance.

Bell 103/212 compatible dumb modems are recommended to connect a remote data terminal. If a smart modem (such as a Hayes modem) is used, configure the modem for the dumb mode of operation (Command Recognition OFF, Command Echo OFF) before connecting the modem to the asynchronous port.

The serial data interface connectors on the paddle board are not RS-232-C standard DB-25 connectors. The NT8D84AA interface cable is used to adapt the paddle board to a non-standard pinout DB-9 connector (normally located on the I/O panel). The NT8D93 cable is then used to connect the non-standard DB-9 connector to a peripheral that uses a RS-232-C standard DB-25 connector (See [Figure 4.](#))

Figure 4
SDI paddle board cabling

